

either Purcell et al USP 6,322,854 (Purcell) or Cavallaro USP 6,224,671 (Cavallaro).

These two rejections are respectfully traversed.

Claim 1 recites a method for the formation of a laminated circuit, including *inter alia*, using a software in a computer to design a laminated circuit comprised of electrically insulative substrates, electric circuits, and passive components, recording the circuit layout of the laminated circuit into a data file subject to a predetermined format and inputting said data file into a laminated circuit forming apparatus comprised of a main control unit, a platform, an insulative material sprayer, a conductive material sprayer, an impedance material sprayer, and a driving unit. The method further includes operating the main control unit of the laminated circuit forming apparatus to convert the inputted data file into sequential control signals to drive the driving unit, causing the driving unit to move the platform, the insulative material sprayer, the conductive material sprayer, and the impedance material sprayer relative to one another, and to drive the insulative material sprayer, the conductive material sprayer, and the impedance material sprayer to eject respective fluid insulative material, fluid conductive material and fluid impedance material onto the platform at different times and locations subject to the sequential control signals to form the desired laminated circuit having an insulative body and electric circuits embedded in the insulative body. This is not taught, disclosed or made obvious by the prior art of record.

Applicants respectfully submit that the AASA is taken out of context. The person having ordinary skill in the art does not look at an integrated process constituting a series of operations which are related to one another, and indeed

dependent on one another, and decide that some of these interrelated operations can be used and others discarded or disregarded. The middle paragraph on page 1 of Applicants' specification sets forth such an integrated prior art process which includes:

- designing the circuit layout in a computer,
- converting the circuit layout into a Gerber file,
- making a negative film subject to the Gerber file,
- developing the circuit layout on a copper foil bonded glass fiber plate, and
- processing the copper foil bonded glass fiber plate into a finished circuit board through a series of additional steps.

The person of ordinary skill in the art does not look at such an integrated operation and decide, well, let's use the first two operations, i.e. designing and converting to a Gerber file, and then not take any of the other steps set forth to make a completed circuit board, such as making negative film subject to the Gerber file. To do so would make no sense at all.

Both secondary references simply relate to apparatus including multi-head dispensers, but have nothing to do with the formation of a laminated circuit as claimed. They do not disclose any method steps for the formation of a laminated circuit. Merely providing the tools by which one (if he or she were sufficiently inventive) could use such tools to make a printed circuit, let alone come up with Applicants' method with or without knowledge of the AASA method, does not make the method obvious.

Applicants respectfully rely on *Ex parte Levengood*, 28 USPQ2d 1300, 1301-1302:

The Examiner notes that each reference discloses a different aspect of the claimed process. The Examiner also notes that all aspects were "well known in the art". The Examiner then indicates that because the various aspects of the claimed process were individually known in the art, the modifications of the electrophoretic process of Levengood by exposing Levengood's plant materials to cell-associated materials in order to "graft" or otherwise incorporate the cell associated material into the plants was **"well within the ordinary skill of the art"** at the time the claimed invention was made.

We reverse the rejection because the Examiner has used the wrong standard of obviousness. (emphasis in original)

Similar to *Levengood*, the rejection in the present invention seems to be based in part on the idea that it is proper to combine diverse elements from different references merely because it is possible to do so. However, that is not the correct standard.

In order to establish a *prima facie* case of obviousness, it is necessary for the Examiner to present **evidence** [footnote, including cited cases, omitted], preferably in the form of some teaching, suggestion, incentive or inference in the applied prior art, or in the form of generally available knowledge, that one having ordinary skill in the art **would have been led** to combine the relevant teachings of the applied references in the proposed manner to arrive at the claimed invention. See, for example, *Carella v. Starlight Archery*, 804 F.2d 135, 231 USPQ 644 (Fed. Cir. 1986); *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 227 USPQ 657 (Fed. Cir. 1985). (emphasis in original)

In the present case, as in *Levengood*, the prior art would not have led the person of ordinary skill in the art to Applicants' invention.

In this case [Levengood],... , the only suggestion for the Examiner's combination of the isolated teachings of the applied references improperly stems from appellant's disclosure and not from the applied prior art. *In re Ehrreich*, 590 F.2d 902, 200 USPQ 504 (CCPA 1979). At best the Examiner's comments regarding obviousness amount to an assertion that one of ordinary skill in the relevant art **would have been able to arrive at appellant's invention because he has the necessary skills to carry out the requisite process steps. This is an inappropriate standard for obviousness.** See *Orthokinetics Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1 USPQ2d 1081 (Fed. Cir. 1986). **That which is within the capabilities of one skilled in the art is not synonymous with obviousness.** *Ex parte Gerlach*, 212 USPQ 471 (BD. App. 1980). See also footnote 16 of *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082, 1092, 227 USPQ 337, 343 (Fed. Cir 1985). (emphasis added)

As indicated above, the secondary references show at most only multi-head dispensers, but otherwise nothing related to the present invention. For example, neither of the secondary references teach or disclose inputting the data file into a laminated circuit forming apparatus comprised of a main control unit, a platform, an insulated material sprayer, a conductive material sprayer and an impedance material sprayer and a driving unit. Further, the secondary references do not teach or suggest operating the main control unit of the laminated circuit forming apparatus to convert the inputted data file into sequential control signals to drive the driving unit, causing the driving unit to move the platform, the insulative material sprayer, the conductive material sprayer and the impedance material sprayer relative to one another and to drive the insulative material sprayer, the conductive material sprayer, and the impedance material sprayer to eject respective fluid insulated material, fluid conductive material and fluid impedance material onto the platform at different times and locations subject to the sequential control signals to form the desired laminated

circuit having an insulative body and electrical circuits imbedded in their insulative body.

As the Board stated in *Levengood*, as quoted above, merely having skill and equipment is not sufficient. "That which is within the capabilities of one skilled in the art is not synonymous with obviousness."

Our reviewing courts have often advised the Patent and Trademark Office that it can satisfy the burden of establishing a *prima facie* case of obviousness only by showing some objective teaching in either the prior art, or knowledge generally available to one of ordinary skill in the art, that "would lead" that individual "to combine the relevant teachings of the reference." *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). *In re Newell*, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989). Accordingly, an Examiner cannot establish obviousness by locating references which describe various aspects of a patent Applicant's invention without also providing evidence of the motivating force which would impel one skilled in the art to do what the patent Applicant has done.

Indeed, the PTO's case for *prima facie* obviousness of the present invention is even weaker than was the case of the PTO in *Levengood*. Not only is there nothing in the prior art which "would lead" the person of ordinary skill in the art to combine the "references" as proposed, but also such a combination (even if obvious, strongly denied by Applicants) would not result in what is claimed. The mere availability of multi-head dispensers does not teach one of ordinary skill in the art what to spray and where to spray it, and that information also is not provided by AASA, it being noted that the rejection agrees that AASA "fails to teach forming the circuitry by a spraying/dispensing apparatus which is controlled by the computer data file to dispense coating material onto the substrate."

For at least these reasons, Applicants respectfully submit that only with impermissible hindsight reference to Applicants disclosure could it have been considered obvious to combine the cited references as proposed in the Office Action. Further, even if, for the sake of argument, it would have been obvious to one of ordinary skill in the art at the time the invention was made, the resulting combination would not have yielded Applicants claimed invention. Accordingly, withdrawal of the rejection is in order and is respectfully requested.

Applicants must traverse the rejection additionally to the extent it relies on some alleged "obvious design choice". Applicants respectfully quote from *Ex parte Haas et al*, 144 USPQ 98, 99:

The Examiner... says that these [features of the claimed invention not shown by the reference] are a matter of choice. It is not a matter of choice presented by the prior art. The prior art gives only one choice [not Applicant's choice]; Thus, one of ordinary skill in the art, turning to the prior art to make his choice, would never arrive at the claimed process. (bracketed material added)

Also see *Ex parte Deere*, 118 USPQ 541, 544; *Ex parte Krantz*, 61 USPQ 238; and *Ex parte Kaiser*, 194 USPQ 47, 48. Moreover, MPEP 2143.03 makes clear that all claim recitations must be taught or suggested by the prior art, citing *In re Royka*, 180 USPQ 580 (CCPA 1974). The materials used are crucial. Applicants do not see that the materials dispersed are "taught or suggested" by the prior art.

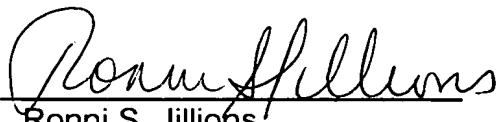
In view of the above remarks, Applicants respectfully request favorable reconsideration and withdrawal of the outstanding rejections of record. Applicants respectfully submit that the application is in condition for allowance and early notice to this effect is most earnestly solicited.

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If the Examiner has any questions, he is invited to contact the undersigned at 202-628-5197.

Respectfully submitted,

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